

(b-2) collecting and sterilizing said eggs from 20<sup>th</sup> day after said first hypodermic injection; and

(b-3) taking out yolks from said eggs by sieve.

17. The preparation method, as recited in claim 13, wherein the step (c) comprises the steps of:

(c-1) evenly stirring said yolks and diluting with 4-6 fold of distilled water to obtain a diluted yolk solution;

(c-2) adjusting said diluted yolk solution to pH 4.5-6.5;

(c-3) standing said diluted yolk solution at 3-5°C for 20-30 hours;

(c-4) centrifuging said diluted yolk solution for 20-30 minutes to obtain a supernatant; and

(c-5) concentrating said supernatant by ultrafiltration, sterilization and lyophilization to achieve said crude IgY.

18. The preparation method, as recited in claim 14, wherein the step (c) comprises the steps of:

(c-1) evenly stirring said yolks and diluting with 4-6 fold of distilled water to obtain a diluted yolk solution;

(c-2) adjusting said diluted yolk solution to pH 4.5-6.5;

(c-3) standing said diluted yolk solution at 3-5°C for 20-30 hours;

(c-4) centrifuging said diluted yolk solution for 20-30 minutes to obtain a supernatant; and

(c-5) concentrating said supernatant by ultrafiltration, ~~eliminating bacteria~~ and lyophilization to achieve said crude IgY.

19. The preparation method, as recited in claim 15, wherein the step (c) comprises the steps of:

(c-1) evenly stirring said yolks and diluting with 4-6 fold of distilled water to obtain a diluted yolk solution;

(c-2) adjusting said diluted yolk solution to pH 4.5-6.5;

(c-3) standing said diluted yolk solution at 3-5°C for 20-30 hours;

(c-4) centrifuging said diluted yolk solution for 20-30 minutes to obtain a supernatant; and

(c-5) concentrating said supernatant by ultrafiltration, eliminating bacteria and lyophilization to achieve said crude IgY.

20. The preparation method, as recited in claim 16, wherein the step (c) comprises the steps of:

(c-1) evenly stirring said yolks and diluting with 4-6 fold of distilled water to obtain a diluted yolk solution;

(c-2) adjusting said diluted yolk solution to pH 4.5-6.5;

(c-3) standing said diluted yolk solution at 3-5°C for 20-30 hours;

(c-4) centrifuging said diluted yolk solution for 20-30 minutes to obtain a supernatant; and

(c-5) concentrating said supernatant by ultrafiltration, eliminating bacteria and lyophilization to achieve said crude IgY.

21. The preparation method, as recited in claim 13, after the step (e), further comprising the steps of:

(f) pouring protein peaks;

(g) estimating an antibody activity with "ELISA"; and

(h) eliminating bacteria by 0.22 $\mu$  membrane filtration and lyophilizing to achieve a purified IgY against dental caries bacteria.

22. The preparation method, as recited in claim 17, after the step (e), further comprising the steps of:

- (f) pouring protein peaks;
- (g) estimating an antibody activity with "ELISA"; and
- (h) ~~eliminating bacteria~~ by  $0.22\mu$  membrane filtration and lyophilizing to achieve a purified IgY against dental caries bacteria.

23. The preparation method, as recited in claim 18, after the step (e), further comprising the steps of:

- (f) pouring protein peaks;
- (g) estimating an antibody activity with "ELISA"; and
- (h) ~~eliminating bacteria~~ by  $0.22\mu$  membrane filtration and lyophilizing to achieve a purified IgY against dental caries bacteria.

24. The preparation method, as recited in claim 19, after the step (e), further comprising the steps of:

- (f) pouring protein peaks;
- (g) estimating an antibody activity with "ELISA"; and
- (h) ~~eliminating bacteria~~ by  $0.22\mu$  membrane filtration and lyophilizing to achieve a purified IgY against dental caries bacteria.

25. The preparation method, as recited in claim 20, after the step (e), further comprising the steps of:

- (f) pouring protein peaks;
- (g) estimating an antibody activity with "ELISA"; and
- (h) ~~eliminating bacteria~~ by  $0.22\mu$  membrane filtration and lyophilizing to achieve a purified IgY against dental caries bacteria.

26. A preparation method of immunoglobulin Y (IgY) against dental caries bacteria, including the steps of:

- (a) separately cultivating said streptococcus mutans type c and type d in a culture medium for 2 to 3 days;
- (b) collecting bacteria by centrifugation;
- (c) washing said bacteria 4 to 6 times with 0.05-0.2M of phosphate buffered saline, pH 6-7, and heating at 50-60°C for 25 to 35 minutes;
- (d) mixing said streptococcus mutans type c and type d in said ratio of 2:1;
- (e) adding Freund's adjuvant equal to total volume of said streptococcus mutans type c and type d with high speed homogenized;
- (f) immunizing said hens by three hypodermic injections of 1.0ml ( $1 \times 10^9$ /ml) of said streptococcus mutans antigens each time at two weeks intervals;
- (g) collecting and sterilizing said eggs from 20<sup>th</sup> day after said first hypodermic injection;
- (h) taking out yolks from said eggs by sieve;
- (i) evenly stirring said yolks and diluting with 4-6 fold of distilled water to obtain a diluted yolk solution;
- (j) adjusting said diluted yolk solution to pH 4.5-6.5;
- (k) standing said diluted yolk solution at 3-5°C for 20-30 hours;
- (l) centrifuging said diluted yolk solution for 20-30 minutes to obtain a supernatant;
- (m) concentrating said supernatant by ultrafiltration, eliminating bacteria and lyophilization to achieve said crude IgY;
- (n) applying said crude IgY on "DEAE-Sephadex A50" column and eluting with phosphate buffer containing 0.07M of NaCl to obtain active eluates; and